

## **11. THE 2017 WINTER WEATHER EXPERIMENT: RESULTS AND VERIFICATION METHODS**

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### **ABSTRACT**

The Weather Prediction Center (WPC) Winter Weather Desk (WWD) provides graphical, gridded, and text guidance as well as collaborative forecast services to National Weather Service (NWS) Forecast Offices (WFOs) during pending winter weather events. The deterministic WPC forecasts serve as a unified guidance dataset while the post-processed probabilistic forecasts help increase awareness of winter weather forecast uncertainty. Between January 17th and February 17th, the WPC Hydrometeorology Testbed (WPC-HMT) conducted its 7th annual Winter Weather Experiment (WWE) in College Park, Maryland.

The 2017 provided an opportunity for participants to explore the 1-hour probabilistic snowfall rate forecast and assess the potential for mesoscale banding with improved model parameterization during the Day 1 forecast period. A multi-model ensemble of implicit snowfall forecasts was tested this year, as well as an evaluation of a model implicit Probability of Winter Precipitation Forecast (PWPF) in the Day 2-3 time periods. The 2017 experiment also conducted initial exploration of issuing both criteria-based winter weather watches and shorter-fused impacts-based winter alerts from a national center. The WPC Watch Collaborator, which uses the WPC PWPF and WFO winter storm watch criteria, was designed to offer the WFO field offices a tool for collaboration among surrounding offices when determining boundaries and issuance times of winter storm watches and was a cornerstone guidance tool. Other tools to complement the Watch Collaborator included disaggregated PWPF into 6-hour forecasts and experimental WPC-developed joint probability tools. To address challenges with winter weather forecast verification, a combination of standard and new tools were applied in the 2017 WWE. This included the remotely-sensed snowfall rate algorithm (SFR) developed through NESDIS which provided satellite-derived observations for evaluating the experimental probabilistic snowfall rate forecasts. The 24-hour snowfall analysis provided by NOHRSC also includes remotely-sensed and ground observations and was utilized in the evaluation of deterministic snowfall forecasts as well as the experimentally-issued watches and alerts. These and other verification and observation tools will be discussed in this presentation.